



Hawaiian Electric Company

Residential Solar Water Heating Program

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FEMP Opportunities for Renewables Workshop

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By: Sharon Suzuki, Program Manager

The logo for Energy\$olutions, with the word "ENERGY" in blue, a yellow dollar sign, and "OLUTIONS" in blue, all in a bold, sans-serif font. A small "SM" trademark symbol is at the end.

ENERGY\$OLUTIONSSM



Topics

- I. HECO's Demand-Side Management Programs**
 - II. HECO's Solar Water Heating Program**
 - III. Successful Solar Water Heating Projects**
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Demand-Side Management (DSM)

- u Rebates to customers for utilization of energy efficient equipment and energy efficiency measures.**
 - u Aimed at deferral of HECO expenditures for additional generation capacity.**
 - u HECO provides technical assistance as required.**
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Why Does the Federal Government Participate in the DSM programs?

- ✓ **Lower your electric bills**
 - ✓ **Lower your operating and maintenance costs**
 - ✓ **Lower your initial investment in energy efficient technology with rebates**
 - ✓ **Consistent with Executive Order 13123**
-



Qualifying Residential Technologies

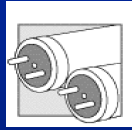
- ✓ **Solar Water Heaters**
- ✓ **Heat Pump Water Heaters**
- ✓ **80 Gallon Tank and Timer**
- ✓ **High Efficiency Electric Resistance Water Heaters**





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Qualifying Commercial Technologies



- ✓ **Lighting**
- ✓ **High Efficiency Air Conditioning**
 - **Packaged and Split Systems**
 - **Centrifugal and Screw Chillers**
- ✓ **Premium Efficiency Motors**
- ✓ **Customized Incentives**

High Efficiency Space Cooling - Above requirements of Hawaii Model Energy Code
Premium Efficiency Motors - Above requirements of Energy Policy Act of 1992



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HECO's Solar Water Heating Program

- ✓ **Largest Solar Water Heating Program in Nation**
- ✓ **Over 14,000 Solar Water Heating Units**
- ✓ **Hawaii Leads the Nation in President's Million Solar Roofs Initiative**





Federal Participation

| <u>Agency</u> | <u># Solar Units</u> | <u>\$ Rebates</u> |
|----------------------|----------------------|--------------------|
| Air Force | 21 | \$16,800 |
| Coast Guard | 62 | \$49,600 |
| Navy | 1,699 | \$2,178,800 |
| Nat'l Weather | 5 | \$4,700 |
| Total | 1,787 | \$2,249,900 |

This constitutes 89% of the entire Federal Government Year 2000 goal of 2,000 solar systems



Residential Rebates

| Technology | Rebates | |
|--------------------------|------------------|-------------------------|
| | <u>Retrofit</u> | <u>New Construction</u> |
| Solar System | \$500 | \$1,000 |
| Heat Pump | \$175 | \$300 |
| Tank and Timer | N/A | \$270 |
| High Eff Electric | \$40-\$70 | \$60-\$80 |



Solar Water Heating Program Features

- u **Uniform Standards & Specifications**
- u **Accepted Products List**
- u **Comprehensive System Inspection**



Benefits to You

- u **Standards & Specs ensure quality system**
 - u **HECO inspections can assist in your acceptance of systems**
 - u **Process minimizes risk & uncertainty**
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Solar Savings

Typical 4-5 Person Family

u Electric Bill Savings

- \$20 - \$50 per month
- \$240 - \$600 per year

u Environmental Savings

- 8 barrels of oil per year
 - 120 barrels of oil over life of solar system
-



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Successful Solar Projects





Solar Projects

υ Military Construction

- Moanalua Terrace II - IV
- Pearl City Peninsula I-V
- Hale Moku I - III
- Hokulani I - II

υ Basic Ordering Agreement with HECO

- Doris Miller/Moanalua Terrace I
- Camp Stover

υ Federal Grants

- Hickam Ohana Nui
 - Coast Guard Housing
 - Pacific Tsunami Warning Center
-



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U.S. Navy Moanalua Terrace Phases II - IV





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U.S. Navy

Moanalua Terrace Phase I - IV

| | |
|------------------|--|
| PROJECT | Revitalization of Navy Family Housing Units |
| EQUIPMENT | 750 Solar Water Heaters Split Air Conditioning Systems Compact Fluorescent Lamps |
| REBATE | \$1,012,000 |
| SAVINGS | \$204,000 Estimated Annually |
| HIGHLIGHT | Change Order Resulted From Availability of Rebates |



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U.S. Navy

Pearl City Peninsula, Phases I - II





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U.S. Navy

Pearl City Peninsula, Phases I - II

| | |
|------------------|--|
| PROJECT | Revitalization of Navy Family Housing Units |
| EQUIPMENT | 207 Solar Water Heaters Split Air Conditioning Systems Compact Fluorescent Lamps |
| REBATE | \$190,000 |
| SAVINGS | \$50,000 Estimated Annually |
| HIGHLIGHT | 1999 HECO Energy Efficiency Award Winner |



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U.S. Air Force

Ohana Nui Housing

| | |
|------------------|--|
| PROJECT | Revitalization of Hickam Air Force Base Family Housing Units |
| EQUIPMENT | 21 Solar Water Heaters |
| REBATE | \$17,000 |
| SAVINGS | \$50,000 Estimated Annually |
| HIGHLIGHT | First Solar Installation at Hickam AFB |



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U.S. Coast Guard

Kia' I Kai Housing

| | |
|------------------|--|
| PROJECT | Kia' I Kai Solar Housing-USCG Project |
| EQUIPMENT | 62 Solar Water Heaters |
| REBATE | \$50,000 |
| SAVINGS | 298,000 kWh Estimated Annually \$33,000 Current Annual Savings |
| HIGHLIGHT | "87% Reduction in Energy Consumption and Costs associated with hot water heating." * *NREL Report August 30, 1999 |



U.S. Navy

Doris Miller & Moanalua Housing

| | |
|------------------|---|
| PROJECT | Doris Miller & Moanalua Housing |
| EQUIPMENT | 156 Solar Water Heaters |
| REBATE | \$45,000 |
| SAVINGS | 547,000 kWh Estimated Annually \$56,000 Current Annual Savings |
| HIGHLIGHT | Completed with Tenant Occupation, 10 year electronic tamper proof timers utilized |



U.S. Navy

Camp Stover Family Housing

| | |
|------------------|---|
| PROJECT | Revitalization of Navy Family Housing at Wheeler Air Base |
| EQUIPMENT | 110 Solar Water Heaters |
| REBATE | \$55,000 |
| SAVINGS | 457,000 kWh Estimated Annually \$47,000 Current Annual Savings |
| HIGHLIGHT | Completed Concurrent with Housing & Roofing Renovation work |



Potential Solar Projects

| <u>Agency</u> | <u>No. of Solar Units</u> |
|---------------------|---------------------------|
| Air Force | 105 |
| Army | 610 |
| Coast Guard | 270 |
| Marine Corps | 184 |
| Navy | <u>192</u> |
| Total | 1,361 |



Summary

- ▮ **Rebates Help the Achieve Energy Efficiency & Renewables**
- ▮ **Call Your HECO Account Manager or Program Engineer for Assistance**

